

REMARKS

The Final Office Action dated July 22, 2004, has been received and carefully considered. In this response, claims 19-24 have been added. Entry of added claims 19-24 is respectfully requested. It is believed that this Amendment, in conjunction with the following remarks, place the application in immediate condition for allowance. Accordingly, entry of this Amendment and favorable consideration of the application are respectfully requested.

At the outset, Applicants note with appreciation the indication on page 3 of the Office Action that claims 3-5, 8-9, 12-14, and 17-18 would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. However, Applicants have opted to defer rewriting the above-identified claims in independent form pending reconsideration of the arguments presented below with respect to the rejected independent claims.

I. THE OBVIOUSNESS REJECTION OF CLAIMS 1, 2, 6, 7, 10, 11, 15

AND 16

On page 2 of the Office Action, claims 1, 2, 6, 7, 10, 11, 15 and 16 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Ramamurthy in the article "Wavelength

Conversion in WDM Networking" in view of Jopson (U.S. Patent No. 5,822,476). This rejection is hereby respectfully traversed.

As stated in MPEP § 2143, to establish a prima facie case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, not in applicant's disclosure. In re Vaeck, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

Regarding claim 1, the Examiner asserts that Ramamurthy teaches a method for optically converting wavelengths in a multi-wavelength system having  $W$  wavelength channels, wherein  $W=2N$ , the method comprising the steps of: selectively directing a received frequency channel corresponding to a respective wavelength channel based upon a predetermined frequency mapping (as seen in Figures 9 and 10). The Examiner then acknowledges that Ramamurthy fails to specifically teach shifting the frequency of the selectively directed frequency channel at least

once by an amount defined by  $\pm 2^i \Delta f$ , wherein  $\Delta f$  is a frequency spacing between adjacent frequency channels, and  $i=0, 1, \dots, N-1$ . The Examiner then goes on to assert that Jopson teaches that frequency shifting by an integer of the frequency spacing is well known in the art (column 2, lines 17-50).

In responding to Applicants arguments, the Examiner asserts that "it is clear that Jopson teaches shifting the frequency of a channel by at least some spacing equal to the spacing between adjacent frequency channels, hence meeting the limitations of the claim." Furthermore, the Examiner asserts "one skilled in the art would have been motivated to shift a signal according to the frequency spacing between adjacent frequency channels in order to preserve the order of the information transmitted."

Applicant respectfully submits, however, that Jopson does not teach or suggest shifting the frequency at least once by an amount defined by  $\pm 2^i \Delta f$ , a logarithmic amount. Rather, Jopson merely teaches a plurality of "discretely separated" optical channels with each channel replicating the optical input signal, but being "spaced apart" from each other by a first fixed frequency separation. Thus, in contrast to the claimed invention, Jopson merely sets shifts the frequency by a linear amount rather than by the logarithmic formula,  $\pm 2^i \Delta f$ , which is recited in each of the pending claims.

Applicant respectfully submits the Examiner has acknowledged this distinction as evidenced by his allowance of dependent claim 3, which also expressly recites a logarithmic amount,  $+2^{N-1-i}\Delta f$ . Further, Applicant respectfully submits that the shift in frequency taught by Jopson is not dependent on the frequency of the selected frequency channel, as is the case with the claimed invention as recited in each of the independent claims, e.g.,  $\pm 2^i$ , where  $i=0, 1, \dots, N-1$ .

The remaining independent claim (i.e., claim 10) recites related subject matter to the above-identified independent claim, and is therefore allowable for reasons similar to those given above.

The dependent claims 2, 6, 7, 11, 15, and 16, are allowable at least by virtue of their dependency on the above-identified independent claims. Moreover, these claims recite additional subject matter which is not suggested by the documents taken either alone or in combination. For instance, none of the cited references, either alone or in combination, teach or suggest "shifting the frequency of the selectively directed frequency channel to a higher frequency," as recited in dependent claim 2.

In view of the foregoing, it is respectfully requested that the aforementioned obviousness rejection of claims 1, 2, 6, 7, 10, 11, 15, and 16 be withdrawn.

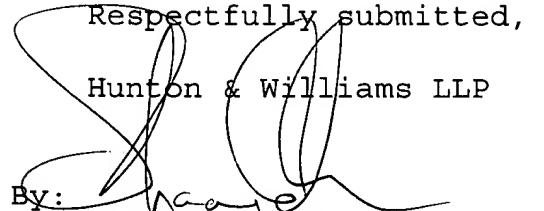
II. CONCLUSION

In view of the foregoing, it is respectfully submitted that the present application is in condition for allowance, and an early indication of the same is courteously solicited. The Examiner is respectfully requested to contact the undersigned by telephone at the below listed telephone number, in order to expedite resolution of any issues and to expedite passage of the present application to issue, if any comments, questions, or suggestions arise in connection with the present application.

To the extent necessary, a petition for an extension of time under 37 CFR § 1.136 is hereby made.

Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to

Deposit Account No. 50-0206, and please credit any excess fees to the same deposit account.

Respectfully submitted,  
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